

Before HANSEN,¹ Chief Judge, McMILLIAN and BEAM, Circuit Judges.

BEAM, Circuit Judge.

American Airlines appeals the judgment and verdict in favor of Anna Lloyd in this multi-district litigation case. We affirm in part, reverse in part and remand for further proceedings.

I. BACKGROUND

On June 1, 1999, American Airlines flight 1420 crashed on the runway at Little Rock Airport in Little Rock, Arkansas. The pilot and ten passengers died as a result of the accident. Anna Lloyd was a passenger on this flight, returning from a three-week trip to Germany and Austria with a group of college singers from Ouachita Baptist University. This incident spawned several lawsuits, and the Judicial Panel on Multi-district Litigation consolidated the cases and transferred them to the Eastern District of Arkansas. Because Lloyd was an international passenger, she sued American under the Warsaw Convention for the Unification of Certain Rules Relating to International Transportation by Air, Oct. 12, 1929, 49 Stat. 3000, 876 U.N.T.S. 11 (1934), reprinted in 49 U.S.C. § 40105 note (1994) (the Warsaw Convention). Prior to trial, American moved for leave to file a third-party complaint against the United States for contribution in all cases arising out of the air crash, both domestic and international. The district court granted the motion with regard to the domestic cases, but denied the motion for international cases. The district court ruled that because American signed a series of International Air Transport Association (IATA)

¹The Honorable David R. Hansen became Chief Judge of the United States Court of Appeals for the Eighth Circuit on February 1, 2002.

intercarrier agreements,² it was liable to the passenger in contract, not in tort, and therefore could not be a joint tortfeasor.

At trial, Lloyd's testimony about the accident and her recovery revealed the following facts. Lloyd was seated near the back of the airplane at the time of the crash, and her leg was punctured and scraped by the bolts from an airplane seat. She also suffered traumatic quadriceps tendinitis when other seats fell on her knees. Lloyd was treated for these injuries and smoke inhalation, and released from the hospital on the same night as the crash. Lloyd later saw two doctors concerning her knee injuries and underwent physical therapy for three to four weeks.

Following the accident, Lloyd spent the remainder of the summer with a friend in Texarkana, which is what she had planned to do before the accident, and worked with young children. The next fall, Lloyd returned to Ouachita and continued her studies toward becoming a music teacher. She testified that she was anxious and nervous that semester and struggled to get good grades. However, her cumulative grade point average for the 1999 fall semester was higher than her grade point average before the accident. Further, between the time of the accident and trial, Lloyd had traveled on three more trips with the Ouachita Singers. At the time of trial, Lloyd continued to suffer from flashbacks and panic attacks.

²The three intercarrier agreements are related, but separate, agreements which operate in conjunction with each other and, among other things, serve to waive the Warsaw Convention's liability limitation "so that recovery may be determined and awarded by reference to the law of the domicile of the passenger." Tory Weigand, The Modernization of the Warsaw Convention and the New Liability Scheme for Claims Arising Out of International Flight, 84 Mass. L. Rev. 175, 183 (2000). These agreements were drafted by the International Air Transport Association, a trade organization of international air carriers. Blanca I. Rodriguez, Recent Developments in Aviation Liability Law, 66 J. Air L. & Com. 21, 33 n.24 (2000). By 1998, all United States international carriers and most of the major foreign carriers had implemented these agreements. Id.

Lloyd scheduled an appointment with a psychiatrist, Dr. Harris, in March 2000. Prior to that appointment, Harris referred Lloyd to a psychological examiner, Dr. VanBlaricom, for testing. VanBlaricom performed psychological assessment tests and provided the results to Harris, who then diagnosed Lloyd as suffering from Post Traumatic Stress Disorder (PTSD) and a major depressive disorder. Harris also served as one of Lloyd's experts at trial. Harris testified that Lloyd's personality traits made her susceptible to PTSD, and that the condition was caused by Lloyd's experiences during the airplane crash. Harris stated that the physical injuries to Lloyd's legs were "a factor" in her PTSD and depression, but later testified that these conditions were not necessarily caused by her knee injuries, stating, "I think it was so horrible on that flight, she thought she was going to die, I think she would have had [PTSD] without the knee injury."

Harris also testified that Lloyd had a physical injury to her brain due to her chronic PTSD. He referred to academic articles on this subject, which state that the hypothalamus and limbic system in the brain of people with PTSD function abnormally. However, Harris did not testify that *Lloyd's* hypothalamus and limbic system functioned abnormally, and he also admitted that he did not perform available tests which could have determined if Lloyd suffered from any such abnormalities. Rather, Harris merely stated that Lloyd's brain was not functioning normally as evidenced by lack of sleep and concentration, as well as the flashbacks.

Dr. Charles Fuller, a professor of music at Ouachita, testified on Lloyd's behalf. Fuller testified that Lloyd had a "very low" chance of completing student teaching and becoming a music teacher. Fuller stated that following the accident, Lloyd lacked the ability to focus on schoolwork; however, he also admitted that Lloyd successfully completed full course loads in the two semesters following the accident. Furthermore, Fuller related that while Lloyd had dropped classes in the fall 2000 semester, she did not need a full course load to complete her degree, and that she would be eligible to begin student teaching once she completed the course she was then taking.

American's psychiatric expert, Dr. Eth, examined Lloyd and her medical records and testified that with proper treatment, Lloyd's prognosis was "quite good." Finally, Lloyd's economic expert testified that her maximum economic losses, including future medical expenses and income loss due to her inability to attain a teaching certificate and become a music teacher, were \$1,166,875.98.

At the close of the evidence, American made a motion for judgment as a matter of law to strike the claims for mental injuries,³ and argued that under Eastern Airlines, Inc. v. Floyd, 499 U.S. 530 (1991), such injuries were not recoverable under the Warsaw Convention. The district court denied this motion and also denied a motion for new trial. In re Air Crash at Little Rock, Ark., on June 1, 1999, 118 F. Supp. 2d 916, 917 (E.D. Ark. 2000).

The jury returned a \$6.5 million verdict⁴ in favor of Lloyd. American appeals, and argues that the verdict bears no reasonable relationship to Lloyd's injuries, is

³We recognize that this type of injury is referred to in various cases under differing terminology, i.e., emotional, psychological, psychic injuries, etc. We intend the use of the terms "mental injuries" or "emotional distress" or "emotional damages" to include all such similar ailments.

⁴Although the Warsaw Convention originally limited carrier liability to \$8300, attempts at modification have occurred several times due to dissatisfaction with this low liability limit. Weigand, 84 Mass. L. Rev. at 176. Recent modifications include the intercarrier agreements referred to in footnote 2, ante. The agreements in force at the time of Lloyd's accident provided that the carrier was strictly liable for the first 100,000 SDR's ("special drawing rights"—an International Monetary Fund currency unit which takes inflation into account and is calculated according to the currencies of France, the United States, Germany, England and Japan). Id. at 181, 183-84. Beyond that amount, the passenger may prove and recover damages according to the law of the passenger's domicile, unless the carrier can prove it took all necessary measures to avoid the damages, Piamba Cortes v. American Airlines, Inc., 177 F.3d 1272, 1282 n.5 (11th Cir. 1999), cert. denied, 528 U.S. 1136 (2000), a standard described as "nearly insurmountable" by one commentator. Rodriguez, 66 J. Air L. & Com. at 35. Thus, the \$6.5 million verdict awarded by the jury was permissible under the version of the Warsaw Convention, as amended by the various intercarrier agreements, in place at the time of trial.

grossly excessive as a matter of law, and shocks the conscience. American also argues the district court improperly admitted lay and opinion testimony, and finally, that the district court improperly precluded it from joining the United States as a third-party tortfeasor for contribution. The United States has filed an amicus curiae brief on behalf of American on this final point.⁵

II. STANDARD OF REVIEW

A motion for new trial is appropriately granted if the verdict is against the weight of the evidence and if allowing it to stand would result in a miscarriage of justice. This ruling is reviewed for an abuse of discretion. Van Steenburgh v. Rival Co., 171 F.3d 1155, 1160 (8th Cir. 1999).

We review a district court's ruling admitting expert witness testimony under Rule 702 for an abuse of discretion. Bonner v. ISP Techs., Inc. 259 F.3d 924, 928 (8th Cir. 2001). We likewise review the trial court's admission of lay opinion testimony for abuse of discretion. Wactor v. Spartan Transp. Corp., 27 F.3d 347, 350 (8th Cir. 1994).

The proper interpretation of the Warsaw Convention is an issue of law, which we review *de novo*. Wallace v. Korean Air, 214 F.3d 293, 296 (2d Cir. 2000), cert. denied, 531 U.S. 1144 (2001).

III. DISCUSSION

A. Recovery for Mental Injuries

⁵The United States argues that, while it believes it will eventually prevail on the contribution claim, it has a greater interest in the correct interpretation of the Warsaw Convention, which explains its participation as an amici in favor of a position which seems against its interest.

American argues, as indicated, that the verdict was excessive as a matter of law and that the evidence established at trial does not support an award of \$6.5 million. American also argues that mental injury damages are not recoverable at all under the Warsaw Convention, or in the alternative, that if they are recoverable, they are recoverable only to the extent that they flow from physical injuries. Under either scenario, according to American, a \$6.5 million verdict is excessive.

In Floyd, the Court held that mental injuries, unaccompanied by physical injuries, were not compensable under the Warsaw Convention. The Court expressly left open the question of whether mental injuries accompanied by physical injuries were recoverable under the Convention. 499 U.S. at 552-53.

The aftermath of Floyd has led to a split of authority on the issue of when, if ever, to allow recovery for mental injuries. Very few, if any, courts have taken the primary stance that American advances—that emotional injuries are not recoverable at all under the Warsaw Convention. See, e.g., Jack v. Trans World Airlines, Inc., 854 F. Supp. 654, 665 (N.D. Cal. 1994) (rejecting approach of allowing no recovery at all for mental injuries because that approach is too restrictive of passengers' rights). And in fact, the case American cites for this proposition, Turturro v. Continental Airlines, 128 F. Supp. 2d 170 (S.D.N.Y. 2001), does not support this rigid theory. Instead, the Turturro court merely held that the plaintiff could not recover for physical manifestations of her emotional damages. Id. at 178.

The more mainstream view, and widely attributed to the decision of the Northern District of California in Jack, is that recovery for mental injuries is permitted only to the extent the distress is caused by the physical injuries sustained. 854 F. Supp. at 668. In Jack, Trans World Airlines Flight 843 attempted to depart from New York's JFK, but experienced an aborted takeoff, crash and fire on the runway, injuring three international passengers. In making its determination as to which damages should be recoverable, the court interpreted Article 17 of the Warsaw Convention and the Floyd decision. The court evaluated several possible approaches

to emotional distress in a Convention case, ranging from no recovery at all to recovery only for distress "flowing from" the bodily injury. Id. at 665.

The Jack court concluded the "flowing from" approach was best, reasoning that it would prevent inequities among the passengers, such that "[t]he happenstance of getting scratched on the way down the evacuation slide [did] not enable one passenger to obtain a substantially greater recovery than that of an unscratched co-passenger who was equally terrified by the plane crash." Id. at 668. Under this approach, a plaintiff cannot recover for the emotional distress arising from the accident itself. Id. This approach has been utilized by several lower courts which have considered the issue. See Alvarez v. American Airlines, Inc., No. 98-Civ.1027, 1999 W.L. 691922, at *5 (S.D.N.Y. Sept. 7, 1999) (airline not liable because the emotional injuries were not proximately caused by physical injuries suffered during the accident); Wencelius v. Air France, Inc., No. SACV 95-389, 1996 WL 866122 (C.D. Cal. Feb. 29, 1996) (same); Longo v. Air France, No. 95 CV 0292, 1996 WL 866124, at *2 (S.D.N.Y. July 25, 1996) (same). Cf. In re Inflight Explosion on Trans World Airlines, Inc. Aircraft Approaching Athens, Greece on April 2, 1986, 778 F. Supp. 625, 638-39 (E.D.N.Y. 1991) (passenger injured in an explosion and then ejected from plane in mid-air could recover for his conscious pain and suffering), rev'd on other grounds sub nom. Ospina v. Trans World Airlines, Inc., 975 F.2d 35 (2d Cir. 1992); Burnett v. Trans World Airlines, Inc., 368 F. Supp. 1152, 1158 (D.N.M. 1973) (damages for "mental anguish directly resulting from a bodily injury" were recoverable); Rosman v. Trans World Airlines, Inc., 314 N.E.2d 848, 856-57 (N.Y. 1974) (holding that under Warsaw Convention, only damages which "flowed from" bodily injury are compensable).

On the other hand, some courts have permitted full recovery for mental injuries, provided only that there are some physical injuries as well, even unrelated, which serve as a threshold to recovery for psychological injuries. See In re Aircraft Disaster Near Roselawn, Ind. on Oct. 31, 1994, 954 F. Supp. 175, 178-79 (N.D. Ill. 1997) (permitting recovery for pre-impact fear when the impact resulted in physical injury and death); Chendrimada v. Air-India, 802 F. Supp. 1089, 1092-93 (S.D.N.Y.

1992) (denying motion to dismiss plaintiffs' claim for compensation for mental injuries when the plaintiff also alleged physical injuries, including nausea and cramps).

The district court followed the Roselawn approach and ruled that a physical injury was simply a prerequisite to full recovery for mental injury. Once a physical injury was established, all of Lloyd's mental injuries were deemed compensable. 118 F. Supp. 2d at 921.

We disagree with this approach, and hold that damages for mental injury must proximately flow from physical injuries caused by the accident. This approach is consistent with Floyd, yet provides full compensation for the victim within the bounds established by the Warsaw Convention. If the emotional damages "flow from," or are caused by, physical injuries, the physical injuries will not be fully compensated if we do not allow recovery for this aspect of the harm. However, allowing a physical injury, no matter how minor or unrelated, to trigger recovery of any and all post-crash mental injuries would violate both the letter and spirit of Floyd. Thus, the district court's ruling that a showing of any physical injury is sufficient to trigger recovery for all emotional damages, regardless of the causal connection between the two, is reversed.

The district court also ruled, in the alternative, that Lloyd adequately established a nexus between her physical injuries and her mental injuries sufficient to justify a \$6.5 million verdict. 118 F. Supp. 2d at 921. Again, we disagree. Lloyd suffered smoke inhalation and fairly deep cuts to her lower legs, both injuries for which she was treated and released from a Little Rock hospital the same night as the crash. She also suffered injuries to her quadriceps that required physical therapy for a month or so. Lloyd's mental injuries are, as indicated, PTSD and depression.

While we agree that the physical injuries to Lloyd's legs may have caused some of her emotional damages, we also agree with American's contention that Lloyd's physical injuries did not "cause[] PTSD sufficient to sustain the principal component

of an award of \$6,500,000." Appellant's Brief at 24 n.13. Instead, in accordance with the "flowing from" rule we announce today, we find that Lloyd can recover only emotional damages which flow from the injuries to her legs and the smoke inhalation. In this regard, the evidence shows that the bulk of Lloyd's mental injuries did not result from these physical injuries. First, Lloyd testified in a deposition that her knee injuries did not cause her PTSD. Second, her expert witness, Dr. Harris, testified that the experience of being in the crash was the cause of Lloyd's mental injuries. When asked, on cross-examination, whether Lloyd would have suffered PTSD if she had not injured her legs, Harris replied, "Yes. I think it was so horrible on that flight, she thought she was going to die, I think she would have had it without the knee injury." Finally, the district court's reasoning suggests that it also believed the accident, and not the physical injuries, caused Lloyd's PTSD, stating, "the knee and calf injuries, the smoke inhalation, were all part of a terrifying accident, which led to [Lloyd's] PTSD." 118 F. Supp. 2d at 923.

Therefore, under the Floyd interpretation of the Warsaw Convention, we must draw a line between mental injuries flowing from physical injuries suffered in the crash and mental injuries directly caused by the accident. At the bottom line, Lloyd's evidence at trial was simply not sufficient to establish a \$6.5 million connection between her relatively insignificant physical injuries and her very significant PTSD and depression.

Finally, the district court offered a second alternative ruling—that Lloyd's PTSD was actually a physical injury within the meaning of the Warsaw Convention. 118 F. Supp. 2d at 924. In so concluding, the district court credited Dr. Harris's testimony that people with chronic PTSD may have brain dysfunction, meaning that PTSD is both biological and psychological. Id. According to the district court, under this theory, Lloyd suffered a physical injury—to her brain. However, there is no contention that Lloyd suffered a head injury of any kind in the crash. Indeed, it is uncontroverted that her only physical injuries as a result of the accident came from leg trauma and smoke inhalation.

We reject this second alternative theory for two reasons. First, as discussed further in Section B, we note there is a complete lack of proof that Lloyd actually suffers from physical changes to her brain as a result of chronic PTSD. Lloyd was not given a magnetic resonance spectroscopy, a positron emission tomography (PET) scan or a single positron emission computed tomography (SPECT) scan, all tests which Dr. Harris testified could have been utilized to show the functioning of Lloyd's brain. Her blood was not tested for elevated levels of cortisol or other hormones, which could also have indicated a dysfunctioning hypothalamus or thyroid. The only evidence that Lloyd's brain actually underwent a physical change was Dr. Harris's otherwise unsupported opinion that it did. Dr. Harris based this opinion on Lloyd's symptoms of disrupted sleep and concentration, and flashbacks. We find that this testimony was not adequate, as a matter of law, to establish a *physical change* to Lloyd's brain.

Further, if Lloyd elects to proceed to a new trial and is subsequently able to prove that she does have a physical injury to her brain, we hold that subsequent physical manifestations of earlier emotional injury are not compensable under the Warsaw Convention. Two other circuit courts which have considered this issue are in accord with our decision. See Carey v. United Airlines, 255 F.3d 1044, 1052 (9th Cir. 2001); Terrafranca v. Virgin Atlantic Airways Ltd., 151 F.3d 108, 110-11 (3d Cir. 1998).⁶

The Terrafranca court considered whether the plaintiff's weight loss was compensable under the Warsaw Convention as a physical manifestation of mental injury. The court examined Floyd and concluded that dicta in the final section of the opinion did not authorize this theory of recovery. The Terrafranca court underscored the requirement of direct causation between the accident and the physical injury,

⁶While we found the Jack court's reasoning persuasive concerning allowing only mental injuries that flow from the physical injuries, we disagree with its dicta that damages for physical manifestations of emotional distress could be possibly recovered. 854 F. Supp. at 667-68.

stating, "[w]e therefore hold that [plaintiff] must demonstrate direct, concrete, bodily injury as opposed to mere manifestation of fear or anxiety." 151 F.3d at 111.

In Carey, the plaintiff's physical manifestations of mental injury consisted of sleeplessness, nausea, cramps and perspiration. The court reasoned that it would undermine Floyd to allow recovery for physical manifestations of emotional distress injuries, stating, "[a]s a practical matter, Floyd 'would thus be converted into an easily satisfied pleading formality, and a back door would be impermissibly opened to recovery for purely psychological injuries' so long as plaintiff could allege nausea and the like." 255 F.3d at 1052 (quoting Alvarez, 1999 WL 691922, at *4).

Floyd draws a clear line between physical injuries and mental injuries. Once recovery is allowed for a physical manifestation of a mental injury, the distinction becomes blurred and under our reading of Floyd, this approach is disallowed. Accordingly, we agree with the reasoning in Carey and Terrafranca and reverse the district court's second alternative holding that Lloyd's PTSD and purported physical changes to her brain were compensable under the Warsaw Convention.

In sum, our holding today is that emotional damages are recoverable under the Convention to the extent that they are caused by physical injuries suffered in the accident. On the other hand, physical manifestation of mental injuries such as weight loss, sleeplessness, or physical changes in the brain resulting from chronic PTSD are not compensable under the treaty. Finally, the evidence at trial of the physical injuries Lloyd suffered and of the emotional injuries which were caused by those physical injuries, was not sufficient to sustain a \$6.5 million verdict.

Clearly Lloyd suffered compensable physical injuries and it is equally clear that some of her emotional trauma can be fairly traced to those injuries, albeit much less than would account for the \$6.5 million award. Although not long in duration, the trial of this case was obviously stressful given Lloyd's emotional condition. Accordingly, we are reluctant to order a new trial without permitting the acceptance of a remittitur in lieu of another adversary proceeding.

An appellate court may condition affirmance upon the plaintiff's acceptance of a remittitur, and there is a somewhat lengthy history of the practice in this circuit. See Hale v. Firestone Tire & Rubber Co., 820 F.2d 928, 936-37 (8th Cir. 1987) (\$1.7 million punitive damages award remitted to \$1 million rather than ordering a fourth new trial); Hollins v. Powell, 773 F.2d 191, 198 (8th Cir. 1985) (\$500,000 compensatory and punitive damages awards under section 1983 remitted or plaintiffs were free to retry the issue of damages before another jury); Everett v. S.H. Parks & Assocs., Inc., 697 F.2d 250, 253 (8th Cir. 1983) (though defendant had unsuccessfully moved trial court for a remittitur "[a]n appellate court may itself order a new trial unless the plaintiff consents to a remittitur in a specific amount") (citing 11 C. Wright & A. Miller, Federal Practice and Procedure § 2820, at 133-34 (1973)); United States v. 47.14 Acres of Land, More or Less, Situate in Polk County, 674 F.2d 722, 728 (8th Cir. 1982) (commission's award based on erroneous use of income capitalization method remitted to conserve judicial resources for complex, lengthy litigation); Stineman v. Fontbonne Coll., 664 F.2d 1082, 1088-89 (8th Cir. 1981) (\$800,000 personal injury award for the loss of an eye during a college softball game remitted to \$200,000 where medical bills did not exceed \$5,000, and jury award "grossly exceed[ed] the damages proven at trial"); Arnott v. American Oil Co., 609 F.2d 873, 889 (8th Cir. 1979) (\$325,000 verdict in antitrust case remitted to \$125,000); Kropp v. Ziebarth, 601 F.2d 1348, 1355 (8th Cir. 1979) (per curiam) (in light of the case's complexity, the large record, and the length of time that had transpired since the events in question, court offered remittitur option rather than ordering a new trial where evidence of damages at prior trial was duplicative).

In light of the amount of time that has passed since the accident in June 1999, and because this was one of several cases on the multi-district litigation docket, instead of ordering a new trial on damages, we offer Lloyd the option of accepting a remittitur for a final judgment of \$1.5 million. We find that number more in line with the evidence presented at trial, including that from Lloyd's own experts. If Lloyd is not agreeable to a remittitur of this amount, we reverse and remand for a new trial.

B. Evidentiary Rulings

In the event that Lloyd does not accept the remittitur and proceeds to a new trial, we address American's assignments of evidentiary error regarding the testimony of Drs. Harris and Fuller.

1. Dr. Harris

American challenges the testimony of Lloyd's expert, Dr. Harris, that Lloyd's PTSD was actually a biological syndrome, rather than merely a psychological one. Harris testified that "researchers have shown brain dysfunction in people who have chronic PTSD" and based his opinion that Lloyd had brain dysfunction on this outside research. Harris testified that there were functional tests that would show physiological changes in the brain, but admitted that he did not perform any of these tests on Lloyd. At trial, American made a motion to exclude Harris's testimony on brain function and PTSD because he was not a neurosurgeon, because he did not perform the functional tests on Lloyd, and because the theory that PTSD results in physical changes to the brain is not a recognized psychiatric concept. The district court denied the motion. Lloyd argues that American's request for a Daubert hearing was untimely and that American did not preserve the issue for appeal since it failed to renew its objection during Harris's trial testimony.

In Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), the Supreme Court detailed the Rule 702 standard for admission of scientific evidence. Daubert offers general criteria for assessing the reliability of scientific evidence, and directs the district court to perform a gatekeeping function with respect to such evidence to ensure that evidence submitted to the jury meets Rule 702's criteria for relevance and reliability. Id. at 590-91. The rule's concern with scientific knowledge bottoms on issues of reliability, while the requirement that the evidence "assist the trier of fact to understand the evidence or determine a fact in issue" is a relevance test. Id.

Daubert demands an assessment of whether the expert's methodology has been tested, and an inquiry into whether the technique has been subjected to peer review and publication, has a known or knowable rate of error, and has been generally accepted in the proper scientific community. Bonner, 259 F.3d at 928-29 n.3. We recognize that the district court has considerable latitude in determining whether expert testimony will assist the trier of fact and be reliable, and it may consider one or all of the Daubert factors in making this determination. United States v. Larry Reed & Sons P'ship, 280 F.3d 1212, 1215 (8th Cir. 2002).

Of American's three objections to Harris's testimony, only the third—that physical changes to the brain resulting from PTSD is not recognized in the psychiatric community—actually raised a Daubert issue. Unfortunately, the district court does not appear to have considered any of the Daubert factors in addressing this objection. The district court merely noted that Harris was a qualified psychiatrist, and then stated "It's beyond my competence. I don't know whether what he says is true or not or what he says in the deposition, that there is research material that shows brain changes as a result of this syndrome." Tr. at 328. This inquiry was not adequate to satisfy the district court's essential gatekeeping role under Daubert. However, Lloyd's point that American requested the Daubert hearing too late in the game is well-taken. During the hearing on the motion, which was held prior to Lloyd's testimony on the second day of trial, the district court noted that in prior cases where Daubert was raised, "we have had extensive depositions taken on the issue and have had hearings. Now, this thing is sprung on me right before the man is to testify. I think that's a little bit late in the day to raise this particular issue." Tr. 328-29. We agree with the district court that when reasonably possible, Daubert issues should be raised prior to trial and that ideally the Daubert "hearing" should not be conducted following a fifteen-minute morning recess shortly before the expert is scheduled to testify.

However, American's second objection to Harris's testimony—that there was an inadequate nexus shown between the scientific theory and any physical condition in Lloyd's brain—carries the day. See Weisgram v. Marley Co., 169 F.3d 514, 521-22

(8th Cir. 1999) (expert testimony not reliable where there was lack of nexus between theory and conclusion), aff'd, 528 U.S. 440 (2000). Because no doctor performed any of the various available diagnostic tests, there was no connection established between the alleged physical brain changes Harris referred to in his testimony and Lloyd's condition. As previously discussed in Section A, Harris based his conclusion on Lloyd's disrupted sleep, lack of concentration and flashbacks. This was an inadequate foundation upon which to base the opinion that a *physical change* had taken place in Lloyd's brain.

Lloyd's argument that American failed to object, and therefore preserve error, during Harris's testimony is unavailing. The lengthy objection, covering over seven pages of trial transcript, and made roughly one hour before Harris testified, was sufficient to preserve this issue on appeal. The objection was made at trial, close in time to when Harris testified, and any further objection during Harris's testimony an hour later would have been "more in the nature of a formal exception," which is not necessary, rather than "a timely objection calling the court's attention to a matter it need consider." Sprynczynatyk v. General Motors Corp. 771 F.2d 1112, 1118 (8th Cir. 1985).

If this case proceeds to a second trial and if this testimony is deemed relevant in measuring any recoverable damages, and it may not be given our earlier rulings, we find that a Daubert hearing should be conducted prior to trial. We direct the district court to consider the relevant factors set forth in Bonner, 259 F.3d at 928-29 n.3, to determine whether testimony on the theories advanced by Harris should be admitted in evidence. We agree with the district court that as a psychiatrist who regularly treats PTSD patients, Harris is sufficiently qualified as an expert to testify on this subject, should it pass Daubert muster. Finally, Harris should not be allowed to opine that Lloyd actually has a physical brain injury unless tests are performed which objectively support this conclusion.

2. Dr. Fuller

American also challenges the opinion testimony of Dr. Fuller, one of Lloyd's college professors, who recounted Lloyd's difficulties in school following the accident and also gave an opinion about Lloyd's chances of becoming a music teacher. Specifically, Fuller stated that Lloyd would have a very low chance of having a successful student teaching experience, which was a requirement for completing her teaching degree. Fuller was the supervisor of music student teachers at Ouachita College.

American alleges that Fuller was not qualified as an expert and that he gave improper lay opinion testimony. Although the evidence at trial clearly qualified Fuller to testify as an expert, it does not appear that his opinions were offered as those of an expert witness.⁷ Instead, Fuller's testimony was based on his personal knowledge and observations of Lloyd at college both before and after the accident. This is more in the nature of lay opinion testimony than expert testimony. See Wactor, 27 F.3d at 351 (experienced lockmen from the Army Corps of Engineers gave permissible lay opinion testimony based on their participation in and observations of events leading up to the plaintiff's injury). We therefore analyze the issue as lay opinion testimony.

Rule 701 requires that lay witness opinion testimony need only be rationally based on perception and helpful to a determination of a fact in issue. Fed. R. Evid. 701. Personal knowledge or perceptions based on experience is a sufficient foundation for such testimony. Id. at 350. Lay opinion testimony is admissible if an analysis of the events, in the form of an opinion, is necessary. Id. at 351.

⁷We also note that the objections at trial were not specifically directed toward his lack of expert qualifications. Instead, counsel only objected to the "form of the question" and the "witness' capabilities" to answer the questions propounded.

We find it was within the district court's considerable discretion to admit the opinions of Fuller. Because of Fuller's personal knowledge of Lloyd and his experience as the supervising instructor of music student teachers at a smaller university in Oklahoma, he was qualified to give an opinion about Lloyd's chances of successfully completing her student teaching requirements. Furthermore, his perceptions and analysis of Lloyd's school experiences following the accident were likely useful to the trier of fact in determining Lloyd's damages. Therefore, whether the proof offered is considered expert testimony or lay opinion, the district court's decision to receive Fuller's testimony was correct.

C. Contribution

Our final task is to review the district court's denial of American's motion (now joined and supported by the United States) for leave to file a third-party complaint for contribution against the United States and an air traffic controller in this and other cases on the multi-district litigation docket arising from this incident. Because this particular motion turns on an interpretation of the Warsaw Convention, we review the question *de novo*. Wallace, 214 F.3d at 296.

The district court reasoned that American, as a signatory to the most recent intercarrier agreements, reserved its right to seek indemnity and contribution as provided by law. However, under Arkansas law, the district court stated, American had no right to contribution because it was liable to international passengers in contract, and not tort, under the agreements. The district court reasoned that Arkansas law provides no right of contribution when one party is liable in tort (presumably the United States) and the other party is liable in contract (presumably American).

Contrary to the district court's conclusion, international cases under the Warsaw Convention, even in light of the intercarrier agreements, sound in tort and not contract. The Convention provides a tort remedy, not one in contract. See In re Air Disaster at Lockerbie, Scot. on Dec. 21, 1988, 928 F.2d 1267, 1279 (2d Cir. 1991)

(Convention is tort remedy, not contractual, as evidenced by the causes of actions it preempts—claims the common law normally associates with the law of tort), overruled on other grounds Zicherman v. Korean Air Lines Co., Ltd. 516 U.S. 217, 229-31 (1996) (holding that contrary to Second Circuit precedent, domestic common law applied to Convention damages claims).

Although not the precise issue before the Court, language in El Al Israel Airlines, Ltd. v. Tseng, 525 U.S. 155 (1999) bolsters our conclusion. In Tseng, the question before the Court was whether the exclusivity provisions of the Warsaw Convention preempted the state tort remedy of a passenger who was intrusively searched before boarding an international flight. Id. at 160. The Court held that the treaty precludes a passenger from bringing an action for personal injury pursuant to state law, even though the incident in question did not qualify as an accident under the Convention. Id. at 176. The Court pointed out that the preemptive effect of the Warsaw Convention extended only to its "substantive scope." Id. at 172. We think the "substantive scope" of preempted claims for personal injury damages is tort law. Cf. Hussman v. Trans World Airlines, Inc., 169 F.3d 1151, 1152 (8th Cir. 1999) (remand to state court not appropriate in suit for personal injuries arising from airline accident because Convention preempted such claims).

Next, the intercarrier agreements do not alter the fundamental nature of the tort remedy in the Warsaw Convention. These agreements arose out of concerns with the treaty's low liability limits and they serve only to modify these limits; they do not themselves provide a cause of action. Further, the agreements are actually between the airline members of the IATA, rather than between airlines and passengers. Weigand, 84 Mass. L. Rev. at 182.

Because the Warsaw Convention's tort remedy for damages has not been altered by the intercarrier agreements, the district court's reasoning that Arkansas law permits third-party claims in the domestic cases applies in the international cases as well. We therefore reverse the district court's ruling and direct it to allow American to file a third-party complaint against the United States. Cf. Piamba Cortes v.

American Airlines, Inc., 177 F.3d 1272, 1305 (11th Cir. 1999), cert. denied, 528 U.S. 1136 (2000) (carrier free to pursue a contribution cause of action against other potential tortfeasors independent of the Convention).

IV. CONCLUSION

For the foregoing reasons, we conditionally affirm the judgment of the district court, subject to Lloyd's acceptance of a remittitur for judgment in the amount of \$1.5 million.⁸ We reverse the district court's denial of American's motion for leave to file a third-party complaint against the United States for contribution. Absent Lloyd's acceptance of the remittitur, we reverse and remand for proceedings consistent with this opinion.

A true copy.

Attest:

CLERK, U.S. COURT OF APPEALS, EIGHTH CIRCUIT.

⁸Because we conditionally affirm the judgment, Rule 37(a) of the Federal Rules of Appellate Procedure provides that Lloyd may recover post-judgment interest on the remitted amount, \$1.5 million, from the date the district court originally entered judgment in this case on October 27, 2000.